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## UNITED STATES DEPARTMENT OF AGRICULTURE



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## THE COMMERCIAL GRADING, PACKING, AND SHIPPING OF CANTALOUPES.

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### INTRODUCTION.

Experienced produce merchants will agree with the statement that any fruit or vegetable of desirable variety, well grown, carefully harvested, properly graded, packed, and shipped, is more than half sold. On the contrary, products poorly grown or carelessly prepared for market are always disposed of under a decided handicap.

The appearance of an article of fruit or produce is the first point noticed by the consumer, the retailer, or the wholesaler. If the product is exhibited in dirty or damaged packages; if it is slack-packed, decayed, or not graded for size or quality, the best "trade" will pass it by for other shipments of better appearance. If upon further inspection the eating or keeping qualities are found to be lacking, the article is sure to be rejected by the discriminating buyer.

**NOTE.**—This bulletin should be of interest to the commercial growers and shippers of cantaloupes in all sections of the United States.

Years of observation on the part of those closely connected with the business warrant the statement that markets are rarely glutted with fruits or vegetables of first-class quality and appearance. High-grade products will sell, and usually at a profit to the grower, even when ordinary or poor grades are going to waste. This situation is to be expected since it is natural for both dealers and consumers to want the best. On a normal market the higher grades may be out of reach of many on account of the price, but when a market is glutted and the quotations drop, the "trade" will become more and more discriminating. The well-graded and well-packed produce will be taken and the mediocre stock left or sold at a sacrifice. Wholesalers and retailers know that the higher the quality of their goods, the less the chance of loss in deterioration, time, and customers.

#### A PRODUCT OF BETTER QUALITY NEEDED.

That consumption is retarded by the shipping of undesirable produce was again proven conclusively during the year 1914. Early in the California shipping season a large number of cars of cantaloupes were picked when too green and rushed to the eastern markets in order that advantage might be taken of the high prices prevailing at that time. The result was that after buying two or three lots of these undesirable melons, consumers not only complained to the retailers, but stopped buying cantaloupes and turned to more desirable fruits, which were both plentiful and cheap. Many of these consumers probably did not buy cantaloupes again until they were able to secure home-grown stock. Every grower and shipper of highly perishable products should realize that when profits accrue from his business, they generally are due to the marketing of produce of good quality and appearance. In certain years of scarcity poor products may be disposed of at a profit, but in the great majority of cases they are a source of loss to all persons engaged in handling them.

This bulletin is designed to aid growers and shippers in preparing their cantaloupes for market in such a way that they may realize higher average returns with fewer losses.

The statements made herein are not based on extensive experiments conducted by the Department of Agriculture, but rather are results of careful observations of grading, packing, and shipping operations as now conducted by the most progressive growers and shippers in some of the best commercial cantaloupe sections of the country, supplemented by investigations of cantaloupe-marketing conditions in many of the larger cities. Studies along this line which may be conducted in the future may develop still more practical and efficient

methods than are here outlined, but the immediate need for some guiding information on the subjects mentioned is so apparent that a recount of the best methods now in use should be of help to a large number of growers.

Growers should bear in mind from the start that it is advisable to produce melons of good quality in order to succeed. A comparatively few years ago the season for eating cantaloupes in the average city was from a month to six weeks in duration. As the demand for the product was strong and the supply light, it was not necessary for growers to place such high-class fruit on the market. Now, however, in almost any of the larger markets the cantaloupe season extends at least from June 15 to October 1, and the generous supplies, together with a more discriminating appetite on the part of consumers, make quality of high degree a necessary factor in success-

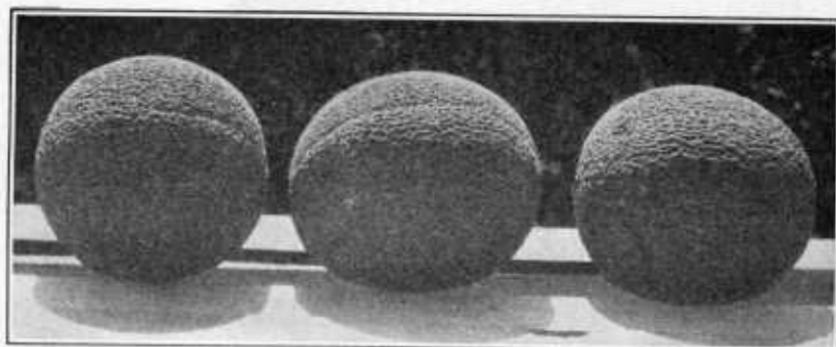


FIG. 1.—Three well-netted cantaloupes. A sample of exceptionally fine commercial stock.

ful marketing. It is not realized generally by cantaloupe growers to what extent the commercial production of this fruit has advanced during the last 10 years. The shipments from the Imperial Valley of California alone have increased about 1,500 per cent during this time, as shown by the following table:

*Increase in shipments of cantaloupes from Imperial Valley, 1905-1914.*

	Carloads.		Carloads.
1905.....	207	1910.....	1,621
1906.....	577	1911.....	2,580
1907.....	644	1912.....	2,887
1908.....	1,891	1913.....	3,502
1909.....	1,411	1914.....	4,480

While this growth is hardly typical of the production in commercial growing sections of other States, growers, especially those in the West, should appreciate the fact that the Eastern and South-

ern States are producing now not only thousands of earloads of melons, but that they are continually improving the quality.

When compared with the moderate expense and short time required to market fruit from many producing sections in the East, western growers are greatly handicapped by high transportation and refrigeration costs and the length of time necessary to reach the consumer. Therefore it is the more important that they grow the best stock possible. From Laurel, Del., for example, cantaloupes picked, packed, and loaded Monday morning, between daylight and about 9 o'clock, when the through freight goes north, are for sale on the New

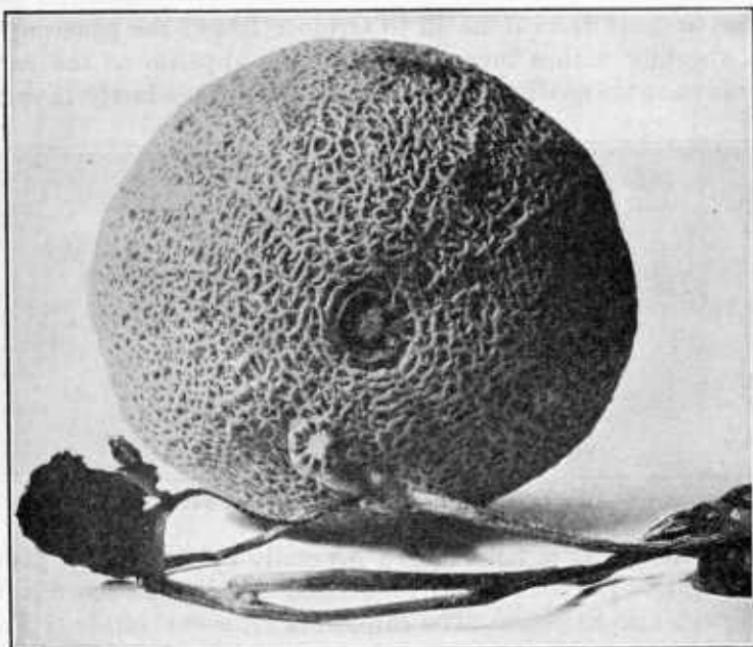


FIG. 2.—An illustration of the term "full slip" used in picking cantaloupes. Note how the stem pulls away from the melon, leaving a clean, cuplike hole.

York market Tuesday morning. The freight rate is about  $12\frac{1}{2}$  cents a crate and no refrigeration is required for shipments made on this train. Cantaloupes picked and shipped at Ordway, Colo., however, are not on sale in New York until about seven days later and the freight, plus refrigeration, is \$1.17 per 100 pounds, or approximately 79 cents for a standard crate.

Since the crop now is grown so generally and the competition on the markets has increased, it behooves each planter to secure seed which will produce in his section melons of the very best eating and shipping qualities, and then give the crop the best of care until it reaches maturity.

**PICKING AND HANDLING CANTALOUPES.**

The proper picking of cantaloupes is a most important operation in preparing them for market. The best judgment must be exercised in selecting melons which have reached the right stage of maturity to carry properly, and experience on the part of pickers and inspectors is necessary if good results are to be obtained. As a matter of fact, it is difficult to make a rule that will state just when they should be picked, for so much depends on such things as the distance from market, the varieties grown, and seasonal conditions. Directions

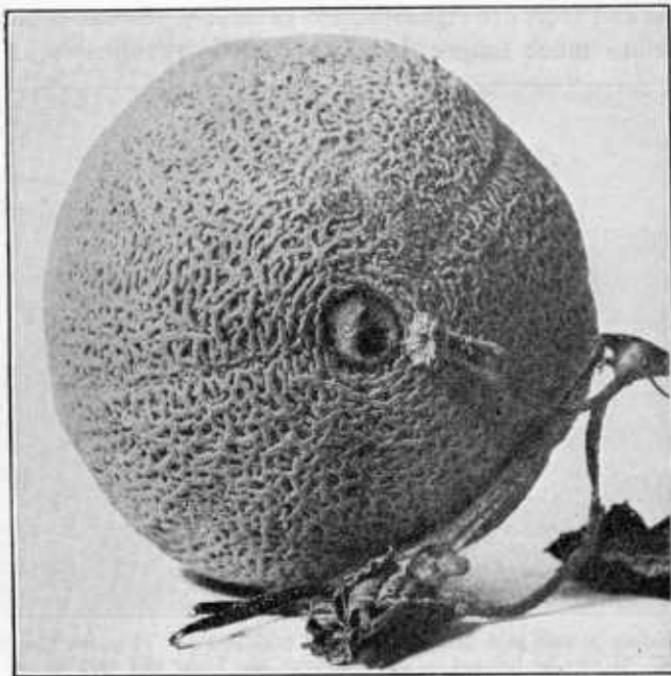


FIG. 3.—A cantaloupe picked on "half slip." Only a part of the stem has "slipped" from the melon easily, leaving the depression on the right side, the other part having broken. As a rule, this condition signifies a less degree of ripeness than the "full slip."

that apply in one section will not necessarily hold good in another. It may be said, however, that melons of the "Netted Gem" strain commonly referred to as "green meats" should be completely netted (fig. 1) before they are harvested. The netting also should be developed fully, that is, well raised up and rounded out on the surface. The netting of immature melons is flat and creased on the top, this crease filling up as the fruit ripens. The dull-green background which shows through the openings in the netting should be developing a lighter shade, and when the shipping distance is short the melons may be left on the vine until this green skin shows a tinge of yellow. Canta-

loupes should not be cut from the vine nor picked when so green that the vine will break off a short distance from the melon. They must be picked every day to avoid overripe stock, and in some cases best growers go over the vines twice a day when the weather is unusually hot.

For shipping short and medium distances most cantaloupes can be picked on what is known as a "full slip," that is, just as soon as the stem will separate from the melon cleanly under moderate pressure of the thumb or finger, leaving a cuplike hole and taking with it none of the rind (fig. 2). At the beginning of the shipping season, when both vines and fruit are vigorous, it is generally possible to ship "full slip" melons much longer distances than is practicable at a later



FIG. 4.—Mexican pickers in a field of Colorado "pink meats." Note the type of picking sack used. It may be lowered into a receptacle, the lower end opened, and the sack withdrawn, thus depositing the melons with little possibility of being bruised.

period. In the Imperial Valley of California, for instance, nearly all of the large distributors now insist that the Japanese growers pick only on the full slip for several days at the opening of harvest, in spite of the fact that the fruit is designed for the eastern markets.

Except as above noted, it usually is necessary when shipping long distances to pick on a "half slip," in which case only part of the stem pulls away from the melon smoothly, the rest breaking (fig. 3). It is claimed that certain recently developed varieties may be picked at "full slip" throughout the season and still carry long distances successfully. If this is true, these varieties have a great advantage over those which must be picked greener, since the "full slip" melons, as a rule, have a much better flavor than others.

Colorado, Georgia, Arkansas, and a few other States produce large quantities of "pink meats," of which the "Burrell Gem" is the most extensively grown commercial variety for long-distance shipping and the one referred to in this bulletin when the term "pink meat" is used. It is more difficult to determine just when these melons have reached the proper stage of maturity for shipping, and in picking them more dependence

is placed on the shade of the green rind which shows in the sectors and through the thin netting than in the case of green-meat melons.



FIG. 5.—Cantaloupes hauled from the field to the packing house in hampers.



FIG. 6.—A cantaloupe packing bench under trees. Melons have been hauled from the pickers to the packing bench in large burlap bags—not a commendable practice.

Pickers can further familiarize themselves with the condition of the stock in the field by cutting a few specimens occasionally to ascertain the degree of sweetness of the flesh and whether it has begun

to soften. The color of the seeds and flesh is also a good indication of the stage of maturity, but as this varies somewhat with different varieties and under different conditions, no exact description can be given.

Regardless of what method is used to determine when melons are ready to pick, it is recommended urgently that growers and shippers of all sections ascertain the condition of their fruit on arrival, either by accompanying to their principal markets shipments picked at various stages of ripeness, or by obtaining from their receivers on the markets a report on this condition. With this knowledge the grower subsequently can pick his cantaloupes when they have reached the stage of maturity at which they will be most likely to reach the consumer in satisfactory eating condition. This is emphasized as



FIG. 7.—A crate of cantaloupes from the southeastern section of Virginia. Note the unattractive jumble pack of melons, ungraded as to size, variety, or quality.

a vital part of cantaloupe marketing because of the large percentage of green or overripe cantaloupes found on nearly every market.

It is important that melons be handled carefully throughout their journey from field to consumer. The illustration (fig. 4) on page 6 shows the cantaloupe-picking sack used quite extensively in the West. It is carried suspended from the shoulders. Such a sack can be emptied into crates easily without bruising the melons, as it simply is lowered into the crate, the bottom opened, and the sack withdrawn. In some sections "standard" cantaloupe crates are used in picking, while in others round, half-bushel baskets are found satisfactory.

The "standard" cantaloupe crate is usually employed to convey the melons from the field to the packing shed. Hampers (fig. 5) and baskets are used in some places and occasionally the melons are

hauled in the picking sacks, although this method is hardly practicable. Care should be exercised in hauling; handling in large burlap bags (fig. 6) or loose in the wagon box is not advisable as there is too great a chance for the stock to become bruised. At the packing shed the melons should not be dumped or thrown carelessly into the bins on the packing bench.

#### SHIPPING PACKAGES.

The crate generally used for cantaloupes is made of two heads or ends, 12 inches square, and twelve slats  $23\frac{1}{2}$  to 24 inches long, according to the type of head used. It is known as the "standard" cantaloupe crate, being the one in which the bulk of the crop is shipped from California, New Mexico, Florida, Utah, Colorado, Texas, Georgia, the Carolinas, Delaware, Maryland, and several other States. The western "jumbo" crate measures 13 by 13 by  $23\frac{1}{2}$  inches and the "pony" crate 11 by 11 by  $23\frac{1}{2}$  inches. The pony and jumbo crates are used much less than the standard. In seasons of heavy production, the small melons packed in the pony crates often can not be shipped profitably, while many sections are finding it more desirable to pack their jumbo melons in the standard crates.

A "two-thirds" crate, which measures 8 by 12 by  $23\frac{1}{2}$  inches, is occasionally used in some sections, and the "two-thirds jumbo" crate is still employed extensively in the shipment of the Arizona crop. However, the former is nearly obsolete now and the latter is losing in favor in most markets, as it fills no particular need and adds to the undesirable multiplicity of cantaloupe packages.

The three types of crates used in Colorado for the elongated, pink-meat melons are the "standard flat" (4 $\frac{1}{2}$  by 13 by 23 inches), the "jumbo flat" (5 by  $14\frac{1}{2}$  by 23 inches), and the "pony flat" (4 by 12 by 23 inches). This type of cantaloupe is seldom packed in other than flat crates. The comparatively few flats used for the

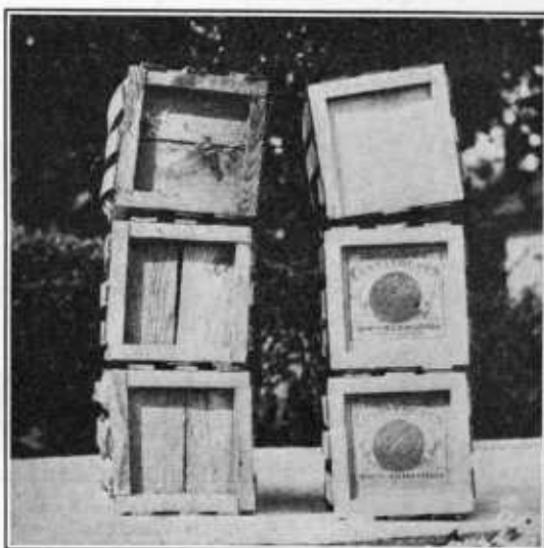


FIG. 8.—Three crates, old and dirty, contrasted with three new and attractively labeled ones.

shipment of green-meat melons in this State are of the same depth and width as the pink-meat flats, but exceed them in length by one-half inch.

Delaware standard crates measure 12 by 12 by 24 inches, pony crates 11 by 11 by 24 inches, and jumbo crates 14 by 14 by 26 inches. In the Decker cantaloupe section of Indiana the regular standard crate (12 by 12 by 24 inches) is used, but the flats employed are of two lengths, the popular one being 4½ by 12 by 20 inches and the one less used 4½ by 12 by 24 inches.

Several of the smaller cantaloupe-shipping sections are still using containers of odd size and construction—a practice which is detrimental to the business in general and probably a source of actual loss to the shipping sections. In the Norfolk section of Virginia jumble-packed cantaloupes are shipped in large crates, 15 by 18½ by

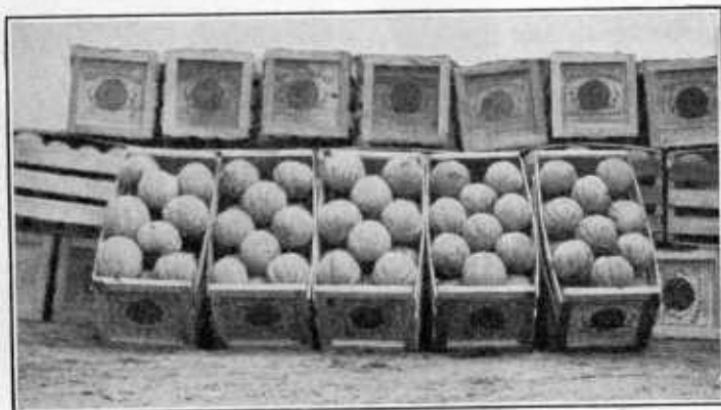


FIG. 9.—Standard crates packed with jumbo-sized cantaloupes, 23 and 27 to the crate.

30 inches in size, of the same type as their 60-quart strawberry crate. These are used for the larger varieties, such as the "Emerald Gem," "Black Jap," and "Osage." This section also packs in smaller crates of similar design (fig. 7), measuring 10½ by 12½ by 25 inches, which carry the smaller melons of the "Knight" and "Rocky Ford" types.

In some of the Central States, particularly Illinois, Indiana, and Michigan, in addition to using the standard crate, a part of the cantaloupe crop is marketed in "Climax" and other baskets, as well as in short, flat crates and boxes holding 10 to 16 melons. On account of the small capacity of the Climax basket it is difficult to maintain an even-sized run of melons, and too often the bottom layer of fruit in this package is found to be much inferior in quality and very loosely packed when compared with the top layer.

It can be seen readily that in shipping cantaloupes, as in shipping most other perishable crops, too many types of packages are used.

However, there is a gratifying tendency on the part of many cantaloupe-producing areas to discard the odd styles of containers and unite in the use of the standard crate and the standard flat. This is evidenced by the fact that whereas formerly in the Decker cantaloupe section of Indiana a large part of the crop was shipped in  $\frac{1}{2}$ -bushel "Climax" baskets, during the season of 1914 it is estimated that not more than 10 per cent of the melons shipped were so packed, the rest going out in the standard crate and the flat.

The appearance of the cantaloupe crate plays such an important part in the marketing of the product that shippers should always pack in first-class containers. Crates should be well made, of clean, smooth, strong lumber with all cross-grained or knotty slats discarded, since they are liable to break before reaching the retailer, with the result that melons become bruised or lost. Dirty crates (fig. 8) and secondhand crates must never be used if top market prices are expected. Crates used in the field in harvesting operations should not be utilized for shipping packages.

In opening a car of cantaloupes after arrival in the market it is the rule, rather than the exception, to find several crates with broken or loosened slats. In the work of distributing the cantaloupes to jobbers and retailers throughout a city, many more crates burst open. Broken crates mean melons injured, stolen, or lost. While rough handling is doubtless a contributory cause, insecure nailing is responsible for a great deal of the trouble. It is the consensus of opinion that the use of cement-coated nails aids greatly in keeping the crates intact, and there is little doubt that the lessened breakage will more than offset the small increase in cost.

#### GRADING CANTALOUPES.

Too little attention is given grading operations by the owners themselves, that work being left largely to hired help. There seem to be no uniform and specific grading rules in use in cantaloupe-shipping sections, and as a result the troubles which arise from the lack of standardization are very apparent. It would be advisable for shippers in each section to agree on the standards of quality and the grading rules to be observed. These should be printed on large cards to be furnished to all persons connected with the harvesting, grading, and packing operations and should be posted in conspicuous places about the packing houses.

In some of the more carefully managed packing houses, sorters, or the packers acting in that capacity, grade a binful of cantaloupes for quality and appearance before the packing is done. Occasionally these sorters also grade for size, but it is a general custom in many commercial growing sections for the packer to grade the cantaloupes

as he packs, throwing out the culs as he finds them and picking out melons of the size that he wants to use. This is not the method employed in the most successful packing of other highly perishable products and it doubtless is a poor one to use in packing cantaloupes.

Even though no uniform grading rules are observed, growers in any section who desire to place their stock on the market in good, salable condition should see to it that all poorly netted melons, commonly known as "slickers," are thrown out, as well as the cracked, diseased, ill-shaped, overripe, or immature specimens, and those having soft ends. Melons which have been cut or bruised by sticks, nails, or stones should be discarded, as they are likely to spoil before reaching the consumer. Only first-class, merchantable cantaloupes should be packed. Fully ripe stock, if shipped, invariably should be

handled separately and sent only to near-by markets. Further suggestions on possible improvements in grading are taken up later.



FIG. 10.—Two exceptionally well-packed standard crates of cantaloupes. Upper crate pictures the standard 45-pack. Lower crate shows the 36-pack, known in Colorado as "Special." Note the heavy netting on these cantaloupes and the uniformity in size and shape.

therein can not all be sold at the same price. Restaurants, hotel dining rooms, railway dining cars, and similar institutions require melons of uniform size as trade demands make it desirable for them to serve every patron with equal portions.

Standard crates should contain 45 melons; pony crates 54 or sometimes 45; and jumbo crates, 36 or 45, according to the size of the fruit. Many sections of the country do not use the jumbo crate, but put up a "jumbo pack" in the standard crate (fig. 9). This usually consists of 36, 33, 27, or 23 cantaloupes, according to their size, but, as a rule, the pack is 36. In Colorado standard crates packed with 36 melons are known as "specials" (fig. 10, lower crate).

#### PACKING CANTALOUPEs.

It is of great importance that the cantaloupes in each type of crate be of uniform size, since large and small melons packed together constitute an undesirable package, which not only makes a very poor appearance on the market, but is discriminated against by retail buyers because of the fact that the melons contained

The five melons in each row of "standard 45's" (fig. 10, upper crate) ought to fill exactly the length of the crate and should be packed only end to end—never placed in the row sidewise "just to make them fit." When the crate is full, three rows wide and three deep, every melon on each side should touch the slats, and the crate, when covered, should bulge slightly on all sides. If the packer does not secure this bulge, then the crate probably will arrive on the market "slack-packed," with the melons loose or the pack jumbled (crates at left of fig. 11). In either case the market value is reduced.

The "pony pack" of 45 melons to the crate is the same as the "standard pack" of 45. The "pony pack" of 54 is similar to the 45 pack, except that 6 melons are placed in each row instead of 5.

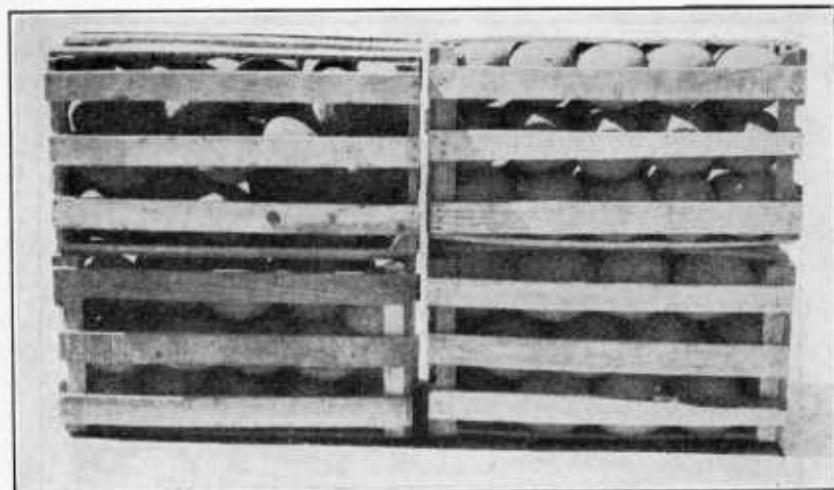


FIG. 11.—The two crates at the left show how poorly packed cantaloupes arrive on the market. On the right are two attractive crates in good condition due to the proper grading and packing of the cantaloupes at shipping point. On a glutted market the crates at the right were selling at a profit, while the ones on the left would not bring freight charges.

The jumbo crate, containing 45 cantaloupes, is packed in the same manner as the standard, the only difference being that the melons are larger. Often the melons run so large that only 36 can be packed in this jumbo crate, in which case the rows are four melons long and are packed diagonally, as shown in the lower crate of figure 10.

All that has been said about grading the green-meat melons applies with equal force to the longer "Burrell Gems." The latter, however, are packed somewhat differently. On account of the shape of these melons they should not lie flat in the crate, but rather at an angle, so that the end overlaps the adjoining melon, as shown in the crate in figure 12. As a rule, they are not so attractive in appearance as the more heavily netted ones and consequently are generally

wrapped. This wrapping should be neatly done and the melons so packed that the corners of the paper do not show at the edges of the crate in an unsightly manner. All the printing on these wrappers should be turned toward the top of the crate.

It is desirable to produce and ship pink meats which are well netted over the blossom end as shown at the left of figure 12. Those on the right of the picture are poorly netted.

From the foregoing it will be seen that, under the methods practiced in many cantaloupe sections, the person who does the packing is also responsible for the grading, sizing, and wrapping (where wrapping is done). As he is usually paid by the crate for his work, it is obvious that he wishes to pack the greatest number of crates possible each day. Therefore, results are not likely to be satisfactory.

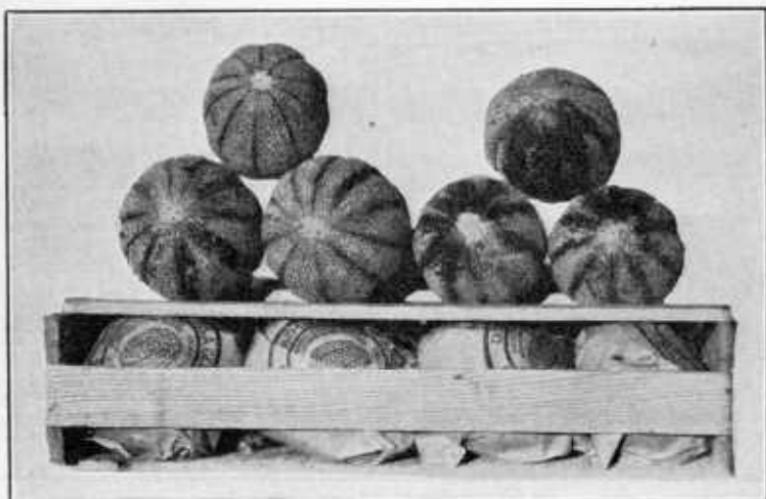


FIG. 12.—Above at the left, three Colorado "pink meats" well netted over the ends; at the right, three melons that are poorly netted or "slick." Below, a standard flat of wrapped "pink meats."

#### TYPES OF PACKING SHEDS.

Figures 6, 13, and 14 give an idea of the average packing facilities now used. In many sections the cantaloupe bins or packing benches are placed out in the field and if possible in the shade of trees (fig. 6). In other places, sheds are built. In Colorado the packing is done mostly under brush-roofed packing sheds, located in the field (fig. 13). The packing house shown in figure 14 is that of a large North Carolina grower and shipper. This house is not only commodious and substantial, but convenient, as well. The teams bringing cantaloupes from the field drive through it and the melons are emptied from the containers on the wagon directly into the bins on the packing benches. It will be noticed that back of the packers is a platform on which to

stack the crated melons in the shade until they are hauled to the cars. When cantaloupe-harvesting operations are not in progress, this packing house is used as a storehouse for farm machinery.

The bins holding the melons slope toward the packer and are built just high enough to allow him to reach the cantaloupes easily and pack standing upright. Figure 15 shows the manner of packing, with the crate tipped toward the packer and placed by the side of the bin of cantaloupes. The work of packing is simplified by having the crate in this slanting position as the melons will remain where they are placed and not roll about.



FIG. 13.—Type of brush-roofed packing shed used in the Ordway and Rocky Ford sections of Colorado. Note cull pile at the left.

#### PRESENT METHODS OF INSPECTION.

In many sections east of the Mississippi melons are packed, hauled, loaded, and shipped without inspection. In the West cantaloupes are inspected more or less carefully at the platform or car door before being loaded (fig. 16). However, in the case of wrapped melons this is an unsatisfactory method, for the inspector can tell but little regarding the color and netting when they are covered entirely by paper. Better work can be done when the product is unwrapped, but even then such a system of inspection does not accomplish all that is desirable. In the larger crates it is impossible to see or feel of all the melons and much imperfect stock often escapes notice. Even when crates are found to hold defective fruit it is difficult to accomplish proper repacking at the loading platform, and, unless the poor specimens are plainly noticeable, many inspectors will pass the lot rather than reject it and run the risk of antagonizing the grower.

Recently in some of these western sections field and packing-house inspection has been practiced to some extent in addition to that at the loading shed, and generally with satisfactory results.

#### NEED OF BETTER GRADING, PACKING, AND INSPECTION.

In all sections and on every crop about one-half of the marketing troubles appear to be concerned with the problem of securing a steady and properly prepared output of uniform grade, quality, and appearance. It would not be difficult to obtain such results if all the individual growers in a community produced crops of the same variety and quality, handled them in the same way, and were both competent and willing to grade and pack them correctly. However, such conditions are very rarely found. Too often growers ship cantaloupes which they acknowledge are not of desirable quality—fruit which they themselves would not eat. If growers



FIG. 14.—Substantial packing shed of a large grower in North Carolina. When not used for packing, this shed houses farm machinery.

of this type can get their poor product past the inspector or conceal it in a car under stock of better appearance, they feel that they have profited. Unfortunately, this does not end the case. The wholesaler will have difficulty in disposing of the poor melons, while the retailer, in turn, probably will lose on them. If they reach the housewife she will throw them away and turn to other fruits, thus decreasing the future sale of cantaloupes.

Again, a crate of poor fruit may go to a restaurant, hotel, or dining car, where it is necessary to cut several of the cantaloupes before finding one satisfactory to serve. Incidentally, such conditions constitute a valid reason for the high price of melons on the average bill of fare. In all these cases the grower eventually loses, directly or indirectly. If the actual loss in money is not deducted from his net returns, he suffers by the injury done his reputation and that of his growing section.

At first thought it would seem reasonable to expect the local buyers, shippers, solicitors, and distributors to eliminate such practices, but there is, as a rule, so much competition among them that they do not accomplish the reforms which, individually, they know to be desirable.

These various weaknesses in the methods now in general use, which are preventing a much-needed improvement in marketing cantaloupes, argue for a more efficient system of grading, packing, and inspecting this product.

It is quite evident that the inspection of the fruit should take place at the packing house, and it is of still more importance that the grading should be done before the melons go to the packer. Grading



FIG. 15.—Interior of a packing shed at Rocky Ford, Colo. The crate is set on a slant in front of the packer so the melons will stay where they are placed. The "bulge" on the crate which is being nailed up at the right insures a solid pack that will carry well and attract the buying trade.

and packing are two distinct operations, the proper performance of each requiring special ability and training.

The aim of the shipper should be to place his cantaloupes on the various markets in such condition that when they have passed through the regular channels of distribution in a reasonable time, they will be in prime shape for consumption whether it be in a near-by or distant market. It is a well-known fact that the flavor of many commercial fruits is sacrificed because they are picked when too green. This is especially true of cantaloupes, and every effort should be made to avoid placing any prematurely-harvested fruit on the market.

It often happens that markets west of the Mississippi receive quantities of western melons entirely too green for use, while on eastern markets the stock arrives overripe, possibly showing signs of decay. The demand in both sections is, of course, for sound stock ripe enough for use, but neither overripe nor green. Such conditions make it essential that cantaloupes be graded and loaded for near-by or distant markets according to their degree of ripeness, if best results are to be obtained.

#### CENTRAL PACKING HOUSES.

Community or central packing houses may serve as a factor in solving some of the problems of the cantaloupe grower in well-developed producing areas. In sections where the melons are marketed through a growers' cooperative marketing organization



FIG. 16.—View under cantaloupe receiving and loading shed at Ordway, Colo. The melons loaded here are practically all "pink meats." The inspectors are feeling of the cantaloupes as they receive them from growers' wagon in order to judge the ripeness and netting. However, the paper wrapper prevents a thorough inspection.

it should not be difficult to put such a system into operation. Of course, it would not be practical to pack all the cantaloupes grown in a large section in one central packing house, but growers in various localities about a shipping point could arrange easily to deliver their melons for grading and packing to large community packing sheds centrally located in their immediate district. Under such a plan it would be desirable to have competent field men make frequent inspections of the growers' fields in order to advise them regarding the proper time to pick, and to reject diseased or undesirable patches. In addition, it would be necessary to employ experienced graders and packers and an efficient foreman to see that every crate leaving the packing house is strictly up to standard in quality and appearance.

Instead of allowing the packer to perform all the functions of grading, sizing, wrapping, and packing at the packing house a grader should discard the culs, including all cracked, overripe, green, poorly netted, or otherwise defective fruit. If located a long distance from market, the good stock should be sorted for ripeness into at least two grades—to carry medium and long distances. In some places far distant from market it would be advisable to make a third grade of "ripes" to be sold in cities within a day's haul. As far as practicable the grader also should sort the melons according to size so that the work of the packers would be facilitated. With this done the packer would have only to watch for the possible mistakes of the grader, to wrap, if this is practiced, and to secure a smooth, uniform, and tight pack. It is impossible for a worker to secure such a pack unless his melons are properly graded to size (fig. 9).



FIG. 17.—Crated cantaloupes exposed to the sun on a hot day to be loaded later into refrigerator cars. The heat absorbed in this way hastens the ripening process and also increases the time and amount of ice necessary to cool the fruit when loaded.

If cantaloupe growers in general knew the great degree to which a tight, bulging pack aids in the disposal of their fruit or how a loose, uneven pack militates against ready sale and good prices, they would never allow a crate to leave their packing house in poor condition.

One of the oldest and most progressive growers in the country divides his packing-house operations into three divisions—sorting by experienced workers to eliminate all imperfect fruit, sizing by power machinery, and packing. His two machines are capable of handling eight carloads a day. The melons are brushed thoroughly and graded mechanically into three sizes—4,  $4\frac{1}{2}$ , and 5 inches—to fit his crates.

**HAULING TO CAR AND LOADING.**

Cantaloupes, like all other fruits which are to be refrigerated, should be loaded into iced cars as soon as possible after picking. The grower ought so to time the operations in his field and packing house that the crated product can be hauled to the loading platform without delay. In figure 17 cantaloupes are shown waiting in the sun the greater part of a hot midsummer day to be loaded into refrigerator cars. It is not difficult to imagine the damage that usually follows such treatment. The process of ripening not only proceeds very rapidly but the cantaloupes absorb so much heat that it takes a long time and consumes much ice to reduce the fruit to a proper temperature.

In hauling cantaloupes from the packing shed to the car growers should use wagons equipped with good springs and provided with



FIG. 18.—Interior of refrigerator car being loaded with "pink meats" in flats at Ordway, Colo. Note separation of rows to allow free circulation of cold air, and car cleats between every two layers of crates.

tarpaulin covers to protect the melons from the sun, rain, or dust. Sometimes drivers or others are seen seated or standing on the crated cantaloupes loaded flat in the wagon. If the crates must be used for a wagon seat, they should be placed on end.

In loading refrigerator cars (fig. 18) care should be exercised to see that sufficient space is left for the proper diffusion of the cold air. The tiers of crates should be spaced across the car so as to allow the freest possible circulation of air from end to end. All cantaloupes should be loaded flat, never on end or, in the case of flat crates, never on edge. In loading standard crates for a long haul it is customary to cleat each row, but in the case of flat crates only every second row is cleated (fig. 18).

In the eastern producing areas with near-by markets, no vacant space is left in the doorway when the car is loaded, but the crates are placed end to end until they fill the entire length of the car. In this way the average car is loaded with about 336 standard crates. In case the crates do not fit tightly in the car it is important that car cleats or pieces of "two by four" be placed in what little vacant space is left, so as to prevent the shifting of the load.

Most of the far western shipping sections, however, load their cars so that an unfilled space is left in the middle of the car, approximately from 2 to 4 feet in width. The load in each end is held in place by bracing heavily with "two by fours." As the bracing and the time required to install it form an appreciable expense item, this style of loading is not popular where the contents of the car will carry well without it.

#### WRAPPING CANTALOUPES.

The advisability of wrapping cantaloupes, as usually practiced in California, Arizona, Nevada, and with the pink meats in Colorado, is a much discussed question. Wrappers certainly add to the attractiveness of the package until the colored paper fades or is torn to allow inspection of the fruit by buyers, and they may have some effect in preventing decay from spreading from one melon to another. However, the sentiment of the buying trade in several markets seems to be turning against the practice. Dealers charge that wrappers tend to promote decay by preventing the evaporation of the moisture which collects on the fruit when it is taken from a refrigerated car. Wrappers also hinder proper inspection of the melons by buyers, and are a source of trouble if it is necessary for the dealer to sort and repack a crate.

Viewed at the producing point also, objections are seen to wrapping cantaloupes, since it allows those who wish, to cover up and pack defective melons which otherwise would be thrown out, and, further, renders satisfactory inspection practically impossible.

It is not desired, however, to sanction or condemn this practice until a more thorough investigation has been made. In the meantime, each shipping section using the paper wrapper will do well to observe the results carefully, both at the point of production and in the markets. The objections met can be balanced against the practical advantages apparent, thus making it possible for each producing area to decide the matter for itself in an intelligent way.

#### BRAND MARKS AND LABELS.

Cooperative marketing associations, firms acting as distributors, and many individual shippers of cantaloupes use a lithographed label or stenciled brand mark on their cantaloupe packages. They find it

the best basis upon which to carry on an advertising campaign and build up a reputation and demand for their goods. Labels with attractive designs also add greatly to the neatness of the packages. If a grower makes a yearly business of producing cantaloupes, there is no doubt that he will profit by the use of a brand name under which all his stock that grades up to a certain standard is sold. A brand name is particularly necessary if a grower is producing a superior cantaloupe and endeavoring to attract trade through the medium of high quality. Dealers and consumers alike must know the brand name of the fruit if they are to repeat their orders.

However, a distinctive brand is of little value unless it is associated with a certain standard of quality brought about and maintained by the constant enforcement of uniform rules governing the grading and packing of the cantaloupes. The standard of a brand once established should never be lowered or it will come to mean little among buyers on the market and the grower will suffer as a consequence.

In connection with this discussion of brand names and labels for cantaloupe packages, it may be expedient to quote "Food Inspection Decision No. 115, on the use of geographical names," approved February 23, 1910, for the benefit of growers, shippers, and distributors of cantaloupes who are not acquainted with it.

Regulation 19 of Circular 21, under captions (b) and (c) contains the following:

"(b) The use of a geographical name shall not be permitted in connection with a food or drug product not manufactured or produced in that place, when such name indicates that the article was manufactured or produced in that place.

"(c) The use of a geographical name in connection with a food or drug product will not be deemed a misbranding when by reason of long usage it has come to represent a generic term and is used to indicate a style, type, or brand; but in all such cases the State or Territory where any such article is manufactured or produced shall be stated upon the principal label."

There are many cases which have been considered by the Board of Food and Drug Inspection in which it has been necessary to decide whether or not, in its opinion, certain geographical names have been sufficiently generic to indicate a style, type, or brand, and in consequence might be used without offending any of the provisions of the food and drugs act. Among the geographical names which have been under consideration are "Rocky Ford" as applied to cantaloupes and "Indian River" as applied to oranges.

The Rocky Ford melon is not a new variety of melon, but is one of the older varieties of melons which in the environment of Rocky Ford, Colo., has attained particular excellence.

The same remark applies to the Indian River oranges of Florida. They are not a new variety, but various varieties which in the environment of the Indian River have attained unusual excellence.

The board holds that the terms "Rocky Ford" and "Indian River" have not become sufficiently generic to indicate styles, types, or brands of melons and oranges, respectively, but that these geographical names are only properly applied to the product of the restricted area for the melons which are grown in or near Rocky Ford and for the product grown in or near the Indian River.

Inasmuch as the term "Rocky Ford" has thus become associated with a melon of peculiar excellence of a certain geographical locality, the board holds that it is unlawful to sell in interstate commerce melons not grown in the Rocky Ford district as "Rocky Ford Seed" melons. The terms are nearly alike, the intent is to deceive, and the law provides that a label should not be false or deceptive in any particular.

#### SUMMARY.

The greatly increased production of cantaloupes with the resulting keener competition on the market makes it more necessary than ever that every commercial grower shall produce fruit of fine quality through intelligent choice of ground, careful selection of seed, and proper cultivation.

Particular attention should be given to the proper picking of cantaloupes, so that they will carry to the markets in the best possible condition.

As in the case of all perishable fruits, cantaloupes should be handled rapidly and with care throughout all the operations of harvesting, grading, packing, and loading on the cars, so as to avoid general deterioration or bruises with consequent decay.

Too many types and sizes of shipping packages are employed in the cantaloupe-producing areas of the country. For better marketing results, the various sections should unite in using new, well-made containers of uniform size and style. The full-sized standard crate and the standard flat crate meet most demands and should be used as far as practicable.

When possible, grading and packing should be treated as distinct operations and performed by different and specially trained workers. The grader should not only throw out all undesirable fruit, but should grade the cantaloupes according to ripeness for long and short hauls. The packer should be free to give his attention to securing a pack of standard count which is both tight and attractive.

To obtain the much-needed improvement in the grading and packing of cantaloupes, it is suggested that in the larger producing centers community packing houses be established where each grower may bring his cantaloupes to be graded and packed by trained workers according to strict grading rules made by a governing body.

Distinctive brands and labels for selling associations or large individual shippers are very desirable as a basis for advertising and building up a reputation for their product. Well-designed labels or stencil marks add much to the attractiveness of packages. Brands are practically valueless, however, unless backed by strict grading rules which govern the quality of the fruit packed under them.

